

## ABSTRACT

The present invention is predicated on the discovery of certain interactions between cellular growth factors and opposing actions that control differentiation and migration or invasion of cytotrophoblasts into the uterine endometrium during pregnancy. IGF-II and 5 latent transforming growth factor beta (TGF $\beta$ ), the inactive precursor of TGF $\beta$ , compete for binding to the CIM6P receptor. IGF-II prevents latent TGF $\beta$  binding to the CIM6P receptor. The invention therefore offers a method of regulating and directing cytotrophoblast differentiation and function based on the interaction between IGF-II, latent TGF $\beta$  and the CIM6P receptor. There is disclosed a method of regulating 10 cytotrophoblast and stem cell differentiation and migration characterized by adjusting levels of insulin-like growth factor II (IGF-II) available for binding to the cation-independent mannose-6-phosphate (CIM6P) receptor. The discovery may be applied to embryonic or adult stem cells to control their differentiation and migratory behaviour.